

## ABSTRACT

In a GPS-supported inertial attitude and heading reference system equipped with a Kalman correction filter and a multiple axis fiber optic gyroscope, the invention provides for only that scale factor error which is determined for the measurement axis (e.g. the vertical axis) with relatively fast motion dynamics to be used as the Kalman filter correction value for the scale factor error correction for all the measurement axes of the FOG to determine and compensate for the scale factor error caused by changes in the wavelength of a common light source. The scale factor error correction is used only with a long time constant.